

R E M A R K S

Claims 1 to 3 and 5 to 8 as set forth in Appendix IV of this paper are now pending in this case. Claim 4 has been canceled, and has been rewritten as new Claim 8, and Claims 1 to 3 and 7 have been amended, as indicated in Appendix III of this paper.

Accordingly, applicants have revised the preamble of Claim 1 to refer to a "catalyst" which is "obtained from" the components (a) and (b). Claims 2, 3 and 7 have been revised accordingly. Further, the definition of component (b) in Claim 1 has been changed to recite the proper Markush language. Claim 4 has been rewritten as new Claim 8 to correct the typographical errors in the recitation "*R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> and R<sup>9</sup>*". No new matter has been added.

Additionally, applicants have revised the paragraph on page 1, indicated lines 33 to 40, of the application to allow for an easier review of the background of applicants' invention. To this end, and in addition to editorial changes, applicants have replaced the expression "copolymers" by "starting materials". Essentially, the referenced oligomers are used as 'co-monomers' in copolymerization processes for manufacturing plastics. In light of the nature of the oligomers it is, however, believed that the expression "starting materials" in connection with the reference to "copolymeric plastics" is better suited to avoid confusion. Applicants have also deleted the expression "complex" in the reference to "an integrated chemical production complex". It is respectfully noted that the lack of precision is due to the fact that the application was originally in the German language and was, subsequently, translated into the English language<sup>1)</sup>. An integrated chemical production means that the product(s) from a first production site are directly conveyed to the place where they are used so that transport and storing expenditures are minimized. In the context of the technology exemplarily addressed by applicants' summary of the background art this means that the steam cracker, the facility to produce olefin oligomers, and copolym-

1) The German term "*Produktverbund*" which is used in the International application in this context has, to the best of applicants' knowledge, no English language equivalent.

erization plants and/or plants for the production of oxo alcohols are located in close proximity of one another. Since the respective issue is of no immediate concern to the subject matter of applicants' invention it is, however, believed that a detailed explanation of integrated chemical production in the application is superfluous.

With regard to the Examiner's criticism that the term "oxo alcohols" is not an art recognized term, it is respectfully submitted that the respective expression is well accepted in the art as a name for alcohols which are obtained from statistical, cracked olefins<sup>2)</sup>. It is therefore believed that a person of ordinary skill in the pertinent art does not require an additional explanation in order to understand the summary of the background art which is given in the particular section of the application.

Applicants have reviewed the application and have not become aware of any possible errors. In light of the revision of the paragraph page 1, indicated lines 33 to 40, of the application it is therefore respectfully requested that the Examiner withdraw her respective objections. Favorable action is respectfully solicited.

It is further respectfully solicited that the Examiner favorably reconsider her rejection of Claims 1 to 7 under the provisions of Section 112, ¶2, in light of the changes made by applicants in the claims. Applicants' amendment removes the objectionable language, introduces proper Markush language, and corrects the typographical errors in Claim 4 (*new Claim 8*).

In light of the foregoing and the attached the application should now be in condition for allowance. Favorable action is respectfully solicited.


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2) Note, for example, *Ullmann's Encyclopedia of Industrial Chemistry*, Volume A10 (VCH Verlagsgesellschaft mbH, 1987; ISBN 0-89573-160-6), page 290, col. 2, penultimate line, to page 291, col. 1, copy enclosed.

Account No. 11.0345. Please credit any excess fees to such deposit account.

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Encl.: THE SUBSTITUTE SECTION(S) OF THE SPECIFICATION (Appendix I)  
THE CHANGE(S) IN THE SPECIFICATION (Appendix II)  
THE CHANGES IN THE CLAIMS (Appendix III)  
THE AMENDED CLAIMS (Appendix IV)  
*Ullmann's* Encyclopedia of Industrial Chemistry (VCH Verlagsgesellschaft  
mbH, 1987; ISBN 0-89573-160-6), Vol. A10, pages 290-291

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## A P P E N D I X II:

THE CHANGE(S) IN THE SPECIFICATION (version with markings):

On page 1:

- The paragraph beginning in indicated line 33 and ending in indicated line 40 has been amended as indicated in the following:

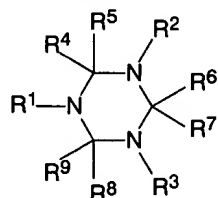
Olefin oligomers having up to 30 carbon atoms [~~have~~] are of great economic importance. The oligomers are useful as [~~copolymers~~ ~~{sio}~~] starting materials for copolymeric plastics (e.g. 1-hexene) [~~or~~] and as precursors of oxo alcohols (e.g. 1-hexene, [~~and~~] the decenes and the tetradecenes). [~~7~~] Oxo alcohols [~~where the latter~~] are in turn constituents of surfactants and plasticizers for plastics. In an integrated chemical production [~~complex~~], the oligomerization processes [~~are~~] constitute a central step [~~from~~] in which the industrial olefin streams [~~coming~~] which are obtained, for example, from the steam crackers [~~to~~] are converted into products used in daily life.

## A P P E N D I X III:

THE CHANGES IN THE CLAIMS (version with markings, showing the changes made):

1. (amended) [~~An oligomerization catalyst for olefins, obtainable~~] A catalyst obtained from

- a) a chromium compound  $\text{CrX}_3$  and the at least equimolar amount, based on the chromium compound  $\text{CrX}_3$ , of a ligand L or from an existing chromium complex  $\text{CrX}_3\text{L}$ , in which the groups X are, independently of one another, abstractable counterions and L is a 1,3,5-triazacyclohexane of the formula I



where the groups  $\text{R}^1$  to  $\text{R}^9$  are, independently of one another: hydrogen or organosilicon or substituted or unsubstituted carboorganic groups having from 1 to 30 carbon atoms, where two geminal or vicinal radicals  $\text{R}^1$  to  $\text{R}^9$  may also be joined to form a five- or six-membered ring, and

- b) at least one activating additive selected from the group consisting of (i) and (ii) wherein:
- i) is an unsubstituted or substituted five-membered aromatic N-heterocycle and at least one aluminum alkyl, wherein some of [~~whose~~] the alkyl groups [~~may have been~~] of the aluminum alkyl are optionally replaced by halogen and/or alkoxy, and
  - ii) is an alkylalumoxane.
2. (amended) [~~An oligomerization catalyst as claimed~~] The catalyst defined in claim 1, wherein the groups  $\text{R}^1$ ,  $\text{R}^2$  and  $\text{R}^3$  in the 1,3,5-triazacyclohexane I are, independently of one another, substituted or unsubstituted  $\text{C}_1$ - $\text{C}_{12}$ -alkyl,  $\text{C}_6$ - $\text{C}_{15}$ -aryl or  $\text{C}_7$ - $\text{C}_8$ -arylalkyl.
3. (amended) [~~An oligomerization catalyst as claimed~~] The catalyst defined in claim 1, wherein the groups  $\text{R}^1$ ,  $\text{R}^2$  and  $\text{R}^3$  in the 1,3,5-triazacyclohexane I are, independently of one another, substituted or unsubstituted  $\text{C}_1$ - $\text{C}_{12}$ -alkyl or  $\text{C}_7$ - $\text{C}_8$ -arylalkyl.

Claim 4 has been canceled.

7. (twice amended) A process for preparing oligomers having up to 30 carbon atoms by reaction of an olefin or a mixture of olefins at from 0 to 150°C and pressures of from 1 to 200 bar in the presence of [~~an oligomerization~~] the catalyst [~~as claimed~~] defined in claim 1.

New Claim 8 has been added as follows.

8. (new) The catalyst defined in claim 1, wherein the groups R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> and R<sup>9</sup> in the 1,3,5-triazacyclohexane I are, independently of one another, hydrogen or methyl.